MOOG VIDEOLARM

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QMR

QView™ Series Ceiling Mount Dome

www.videolarm.com

Installation and Operation Instructions for the following models:

QMRT2-70NA	Recessed tinted indoor/outdoor ceiling dome, with two (2) Day/Night cameras, 3-9mm auto-iris lens
QMRT4-70NA	Recessed tinted indoor/outdoor ceiling dome, with four (4) Day/Night cameras, 3-9mm auto-iris lens

Before attempting to connect or operate this product, please read these instructions completely.
To be used with the 81-IN5409 Instruction Manual.

81-IN5258
01-31-2012

IMPORTANT SAFEGUARDS

1 Read these instructions.

2 Keep these instructions.

3 Heed all warnings

4 Follow all instructions.

5 Do not use this apparatus near water.

6 Clean only with damp cloth.

7 Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.

8 Cable Runs- All cable runs must be within permissible distance.

9 Mounting - This unit must be properly and securely mounted to a supporting structure capable of sustaining the weight of the unit.

Accordingly:

a. The installation should be made by a qualified installer.

b. The installation should be in compliance with local codes.

c. Care should be exercised to select suitable hardware to install the unit, taking into account both the composition of the mounting surface and the weight of the unit.

10 Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

11 Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

12 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

13 Only use attachment/ accessories specified by the manufacturer.

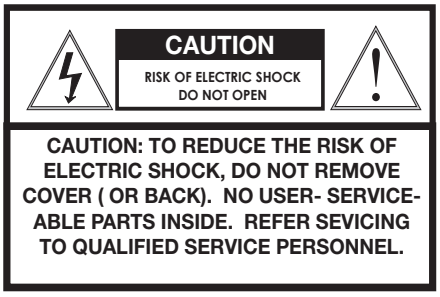
14 Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

15 Unplug this apparatus during lighting storms or when unused for long periods of time.

16 Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled of objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Be sure to periodically examine the unit and the supporting structure to make sure that the integrity of the installation is intact. Failure to comply with the foregoing could result in the unit separating from the support structure and falling, with resultant damages or injury to anyone or anything struck by the falling unit.

SAFETY PRECAUTIONS


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER- SERVICE-ABLE PARTS INSIDE. REFER SEVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with an arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of non-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk to persons.

Este símbolo se piensa para alertar al usuario a la presencia del “voltaje peligroso no-aislado” dentro del recinto de los productos que puede ser un riesgo de choque eléctrico.

Ce symbole est prévu pour alerter l’utilisateur à la presence “de la tension dangereuse” non-isolée dans la clôture de produits qui peut être un risque de choc électrique.

Dieses Symbol soll den Benutzer zum Vorhandensein der nicht-Isolier “Gefährdungsspannung” innerhalb der Produkteinschließung alarmieren die eine Gefahr des elektrischen Schlages sein kann.

Este símbolo é pretendido alertar o usuário à presença “di tensão perigosa non-isolada” dentro do cerco dos produtos que pode ser um risco de choque elétrico.

Questo simbolo è inteso per avvertire l’utente alla presenza “di tensione pericolosa” non-isolata all’interno della recinzione dei prodotti che può essere un rischio di scossa elettrica.

The exclamation point within an equilateral triangle is intended to alert the user to presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Este símbolo del punto del exclamation se piensa para alertar al usuario a la presencia de instrucciones importantes en la literatura que acompaña la aplicación.

Ce symbole de point d’exclamation est prévu pour alerter l’utilisateur à la presence des instructions importantes dans la littérature accompagnant l’appareil.

Dieses Ausruf Punktsymbol soll den Benutzer zum Vorhandensein de wichtigen Anweisungen in der Literatur alarmieren, die das Gerät begleitet.

Este símbolo do ponto do exclamation é pretendido alertar o usuário à presença de instruções importantes na literatura que acompanha o dispositivo.

Questo simbolo del punto del exclamaton è inteso per avvertire l’utente alla presenza delle istruzioni importanti nella letteratura che accompagna l'apparecchio.

UNPACKING

Unpack carefully. Electronic components can be damaged if improperly handled or dropped. If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper.

Be sure to save:

1 The shipping carton and packaging material. They are the safest material in which to make future shipments of the equipment.

2 These Installation and Operating Instructions.

SERVICE

If technical support or service is needed, contact us at the following number:

TECHNICAL SUPPORT
AVAILABLE 24 HOURS
1 - 800 - 554 -1124

USA PRIDE

Limited Warranty for Moog Videolarm Products

Moog Videolarm warrants these products to be free from defects in material or workmanship as follows:

PRODUCT CATEGORY	PARTS \ LABOR
All Enclosures and Electronics*	Five (5) Years
Poles/PolEvators™/CamEvator	Three (3) Years
Warrior Series™/Q-View™/IR Illuminators	Five (5) Years
SView Series™	Five (5) Years **6 months if used in auto scan/tour operation
Controllers	Five (5) Years
Power Supplies	Five (5) Years
EcoKit	Three (3) Years
Accessory Brackets	Five (5) Years
Liberty Dome	Three (3) Years
*DeputyDome™, NiteTrac™, Igloo Dome, PurgeDome™	Three (3) Years **6 months if used in auto scan/tour operation

During the labor warranty period, to repair the Product, Purchaser will either return the defective product, freight prepaid, or deliver it to Moog Videolarm Inc. Decatur GA. The Product to be repaired is to be returned in either its original carton or a similar package affording an equal degree of protection with a RMA # (Return Materials Authorization number) displayed on the outer box or packing slip. To obtain a RMA# you must contact our Technical Support Team at 800.554.1124, extension 101. Moog Videolarm will return the repaired Product freight prepaid to Purchaser. Moog Videolarm is not obligated to provide Purchaser with a substitute unit during the warranty period or at any time. After the applicable warranty period, Purchaser must pay all labor and/or parts charges.

The limited warranty stated in these product instructions is subject to all of the following terms and conditions.

TERMS AND CONDITIONS

1. NOTIFICATION OF CLAIMS: WARRANTY SERVICE: If Purchaser believes that the Product is defective in material or workmanship, then written notice with an explanation of the claim shall be given promptly by Purchaser to Moog Videolarm. All claims for warranty service must be made within the warranty period. If after investigation Moog Videolarm determines the reported problem was not covered by the warranty, Purchaser shall pay Moog Videolarm for the cost of investigating the problem at its then prevailing per incident billable rate. No repair or replacement of any Product or part thereof shall extend the warranty period of the entire Product. The specific warranty on the repaired part only shall be in effect for a period of ninety (90) days following the repair or replacement of that part or the remaining period of the Product parts warranty, whichever is greater.

2. EXCLUSIVE REMEDY: ACCEPTANCE: Purchaser's exclusive remedy and Moog Videolarm's sole obligation is to supply (or pay for) all labor necessary to repair any Product found to be defective within the warranty period and to supply, at no extra charge, new or rebuilt replacements for defective parts.

3. EXCEPTIONS TO LIMITED WARRANTY: Moog Videolarm shall have no liability or obligation to Purchaser with respect to any Product requiring service during the warranty period which is subjected to any of the following: abuse, improper use, negligence, accident, lightning damage or other acts of God (i.e., hurricanes, earthquakes), modification, failure of the end-user to follow the directions outlined in the product instructions, failure of the end-user to follow the maintenance procedures recommended by the International Security Industry Organization, written in product instructions, or recommended in the service manual for the Product. Furthermore, Moog Videolarm shall have no liability where a schedule is specified for regular replacement or maintenance or cleaning of certain parts (based on usage) and the end-user has failed to follow such schedule; attempted repair by non-qualified personnel; operation of the Product outside of the published environmental and electrical parameters, or if such Product's original identification (trademark, serial number) markings have been defaced, altered, or removed. Moog Videolarm excludes from warranty coverage Products sold AS IS and/or WITH ALL FAULTS and excludes used Products which have not been sold by Moog Videolarm to the Purchaser. All software and accompanying documentation furnished with, or as part of the Product is furnished "AS IS" (i.e., without any warranty of any kind), except where expressly provided otherwise in any documentation or license agreement furnished with the Product. Any cost associated with removal of defective product and installation of replacement product is not included in this warranty.

4. PROOF OF PURCHASE: The Purchaser's dated bill of sale must be retained as evidence of the date of purchase and to establish warranty eligibility.

DISCLAIMER OF WARRANTY

EXCEPT FOR THE FOREGOING WARRANTIES, Moog Videolarm HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY AND/OR ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND/OR ANY WARRANTY WITH REGARD TO ANY CLAIM OF INFRINGEMENT THAT MAY BE PROVIDED IN SECTION 2-312(3) OF THE UNIFORM COMMERCIAL CODE AND/OR IN ANY OTHER COMPARABLE STATE STATUTE. Moog Videolarm HEREBY DISCLAIMS ANY REPRESENTATIONS OR WARRANTY THAT THE PRODUCT IS COMPATIBLE WITH ANY COMBINATION OF NON-Moog Videolarm PRODUCTS OR NON-Moog Videolarm RECOMMENDED PRODUCTS PURCHASER MAY CHOOSE TO CONNECT TO THE PRODUCT.

LIMITATION OF LIABILITY

THE LIABILITY OF Moog Videolarm, IF ANY, AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DAMAGES FOR ANY CLAIM OF ANY KIND WHATSOEVER, REGARDLESS OF THE LEGAL THEORY AND WHETHER ARISING IN TORT OR CONTRACT, SHALL NOT BE GREATER THAN THE ACTUAL PURCHASE PRICE OF THE PRODUCT WITH RESPECT TO WHICH SUCH CLAIM IS MADE. IN NO EVENT SHALL Moog Videolarm BE LIABLE TO PURCHASER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION, REIMBURSEMENT OR DAMAGES ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS OR FOR ANY OTHER REASON WHATSOEVER.

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CABLE AND POWER GUIDELINES (Detailed info on Page 11)

This chart shows the proper current needed for power supplies for Q-View™ cameras. Use Class 2 Power only. Input voltage must be 24 VAC/VDC.

CAMERAS	VOLTAGE	CURRENT	POWER
1	24 VAC/VDC	102mA	2.5W
2	24 VAC/VDC	210mA	5W
3	24 VAC/VDC	331mA	7.9W
4	24 VAC/VDC	487mA	10.9W

Use the formula below to select the correct power supply for cameras connected in parallel (positive to positive, negative to negative):

Total current for a 24 VAC system:
TOTAL CURRENT = (202mA x total number of cameras)

Note: 202mA is camera plus power supply

HOUSING INSTALLATION

1. Carefully remove all equipment from the box.

2. Place the 11 1/8" template provided with the unit at the desired location on the ceiling. Trace around the template, then cut a hole in the ceiling following the trace lines.

3. Remove the desired conduit knock-out from the top of the QMR housing.

4. Remove the trim ring/dome assembly by pulling on the outside of the trim ring. The ring and dome are connected by three flat springs, which press against the side of the housing and lock into (3) cutouts.

5. Run electrical cable and video leads into the housing through the conduit knock-out.

6. With the (3) support arms rotated to the inside, slide the housing into the pre-cut hole (Figure 1).

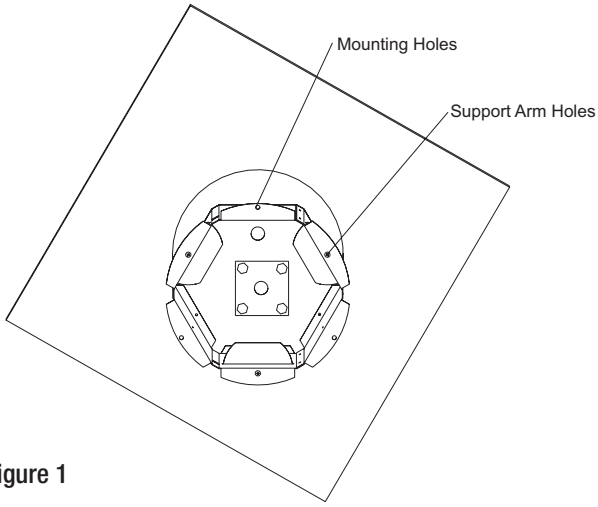


Figure 1

7. With the bottom flange pressed up against the ceiling, rotate the support arms to the outside, the arms will fall to the back side of the ceiling. Tighten the (3) support arm screws (Figure 2).

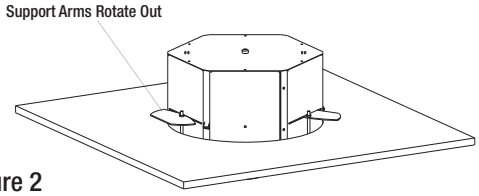


Figure 2

8. If the housing is going into a ceiling where the support arms will not work, secure the housing by running bolts into the solid ceiling through the mounting holes in the bottom flange (Figure 1).

9. For added support, run support wires from a secure structure to the two slots provided on the top of the housing (Figure 3).

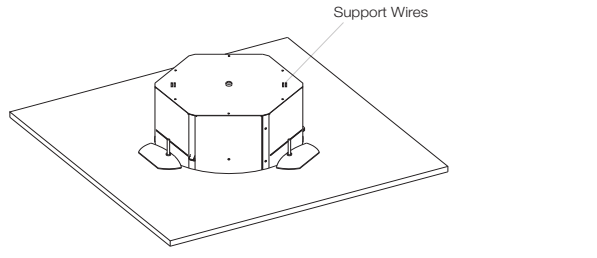


Figure 3

WIRING

1. Make the proper connections to the incoming power. The RED wire is POSITIVE (+), the BLACK wire is NEGATIVE (-) (For reference purposes. Polarity is not important in this unit). The GREEN wire, labeled Ground, is GROUND for VAC or VDC connections.

NOTE: Connect green ground wire to earth ground (metal conduit,metal stud, etc.)

2. Attach the BNC connectors to the video in.

CAMERA ADJUSTMENTS

1. After completing installation of the housing, use the segmented arms to adjust each camera to the desired viewing location (Figure 4).

2. Once camera adjustments are made, place the dome back into position to be sure cameras are not touching the inside of the dome. If any do, adjust until they are clear.

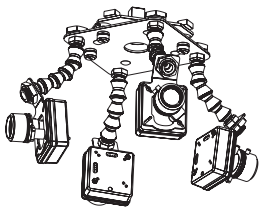


Figure 4

CAMERA FOCUSING

1. **Fine focusing:**

Fixed Lens: Loosen the set screw in the lens mount and manually rotate the lens until a clear picture is achieved. Once the focus is set, retighten the set screw (Figure 5).

Figure 5

Vari-Focal Lens: First, adjust the Magnification Lock Screw to the desired magnification (telephoto to wide angle). Tighten the Lock Screw. Next, adjust the Focus Lock Screw until a clear picture is achieved. Tighten the Lock Screw (Figure 6).

Figure 6

Auto Iris Lens:

NOTE: THE AUTO IRIS LENS IS SET AT THE FACTORY.

- **IF YOU EXPERIENCE VIDEO TOO LIGHT OR DARK AUTO IRIS ADJUSTMENT MAY BE NEEDED.**

SEE THE TROUBLESHOOTING SECTION FOR ADJUSTMENT INFORMATION.

CAMERA SETTINGS

NOTE: To determine which camera is used in your unit, locate the serial number on the inside of the housing. Match the two letter prefix with the corresponding instructions included here for adjustments.

SERIAL NUMBERS BEGINNING WITH YK

FIXED AND FIXED VARI-FOCAL LENSES. There are no user adjustable settings on these units (Figure 7).

BW Fixed and Vari-Focal

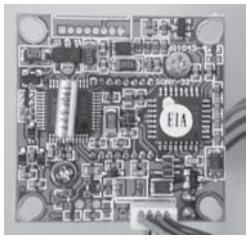


Figure 7

AUTO IRIS LENSES. The dip switches are factory set with AES off and backlight compensation on (Figure 8). The auto iris is also set at the factory, but an adjustment screw is included for use if needed. See page 10 for instructions on adjusting Auto Iris.

BW Auto Iris

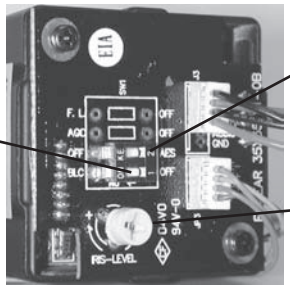


Figure 8

SERIAL NUMBERS BEGINNING WITH MC

The operational settings for the camera are defined by ten dip switches located on the PC Board (Figure 9). Moving the switches to the on position will activate each setting. Factory defaults are pictured below (Figure 10 and 11).

Hi-Res Color, Fixed and Vari-focal fixed lenses

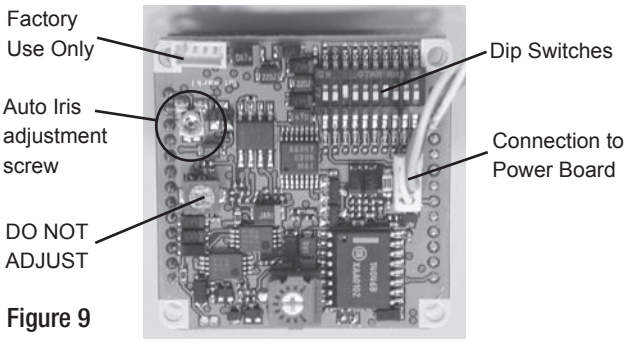


Figure 9

NOTE: Dip switches are factory pre-set for optimum performance. In certain specific instances it may be necessary to adjust one or more settings. Consult a qualified technician before making any adjustments. A Dip Switch settings chart is available on the next page.

FACTORY DEFAULT FIXED AND FIXED VARI-FOCAL LENSES:

Dip Switches 5 and 7 on, all others off.

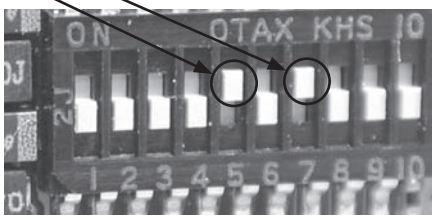


Figure 10

FACTORY DEFAULT AUTO IRIS LENSES:

Dip Switches 3, 5 and 7 on, all others off.

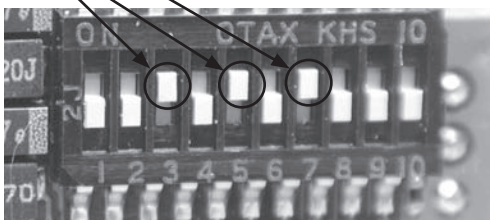


Figure 11

MC CAMERA DIP SWITCH SETTINGS CHART

SWITCH	SETTING	DEFINITION
1	Flickerless Mode	Setting this switch to "On" and switch 3 (MIRIS) to "Off" will help to reduce the flicker in fluorescent lights.
2	BLC (Back Light Compensation)	Helps prevent an object from being washed out when the object is directly in front of a light source.
3	MIRIS (Manual/ Electronic Iris	When the switch is in the on position the auto iris lens controls the amount of light on the chip. If in the off position the light level is controlled electronically.
4	GAMMA	Helps balance the contrast in the picture.
5	AGCMAX (auto/gain control)	Allows day/night cameras to switch to b/w in low light conditions, also helps with low light conditions in standard and hi-res cameras.
6 7 8	(Automatic White Balance Control) AW1 AW2 AW3	Used to help improve the color quality of the camera picture under different lighting conditions. The Factory Default is Switch 7 "ON", switches 6 and 8 "OFF". **NOTE: ANY ADJUSTMENTS TO THESE SETTINGS SHOULD ONLY BE MADE BY A QUALIFIED CCTV TECHNICIAN** See examples below to help with any adjustments.
9	AEREF	This sets the electronic convergence level. In the "off" position the level is set to 100 IRE; in the "on" position the user can set the level. Not used with auto Iris.
10	AEME	With this switch in the "On" position users can manually adjust the shutter speed and gain using other switches See the tables below for specific settings.

SHUTTER SPEED			
Flickerless (1)	BLC (2)	MIRIS (3)	Shutter Speed
On	Off	Off	1/100 Sec.
Off	On	Off	1/60 Sec.

GAIN			
MIRIS (3)	AEREF (9)	AGCMAX (5)	Gain
On	Off	Off	0dB
On	On	Off	6dB
On	Off	On	12dB
On	On	On	18dB

SERIAL NUMBERS BEGINNING WITH CB

NOTE: This hi-res color camera uses a 1/4" chip and a 3-6mm auto iris lens. It is comparable to a 1/3" chip using a 4-9mm auto iris lens.

The operational settings are defined by four dip switches located on the side of the PC Board (Figure 12 and 13). Moving the switches to the UP position will activate specific settings. Refer to the chart below.

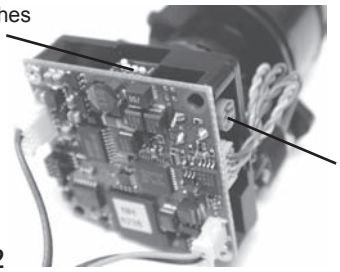


Figure 12

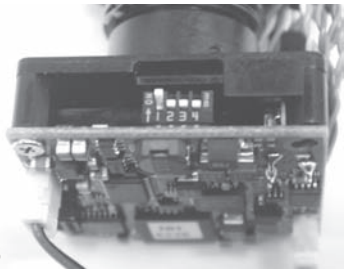


Figure 13

Dip Switch	UP	DOWN
1 (Iris)	Auto Iris On	Position for Fixed Lens
2 (Flickerless)	Shutter speed fixed at 1/100 sec.	Normal
3 (Back Light Compensation	ON	Normal
4 (Synch Mode)	Internal Synch	Line Lock Mode

SERIAL NUMBERS BEGINNING WITH CT

FIXED AND FIXED VARI-FOCAL LENSES. There are no user adjustable settings on these units (Figure 14)

AUTO IRIS LENSES: The auto iris can be adjusted if needed. See the Troubleshooting section for instructions.

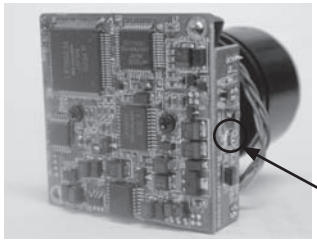


Figure 14

COMPLETION OF INSTALLATION

Once all connections and adjustments have been made reattach the trim ring/dome assembly by pressing in and sliding the three flat springs into the housing (Figure 15). Make sure the springs are aligned with the three spring slots. You will feel all three springs snap into place when the dome is correctly secured into place. Rotate the dome for final proper positioning of the liner and camera.

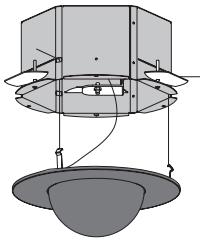


Figure 15

NVT INSTRUCTIONS

UNSHIELDED TWISTED PAIR VIDEO WIRING

NOTE: The customer must purchase the Video Transceiver from NVT. Part numbers are:

- NV-212A (500 ft.)
- * NV-213A or NV-213A-M (1000 ft.)
- NV-652R, NV-862R, or NV-1662R (3000 ft.)

The cameras included in the Q-View™ series have the option of transmitting video signals to NVT receivers via unshielded twisted pair cable. You must purchase the receiver separately. Instructions for connecting the receiver end of the unshielded twisted pair cable will be included with the NVT receiver. Following are instructions for connecting the unshielded twisted pair cables to the RJ45 (Cat. 5) cable running outside your housing.

1. Video for all four cameras is contained in the one RJ45 (Cat. 5) cable. An RJ45 female coupling is provided so that all connections can be made with an RJ45 connector. The following is the wiring diagram for the four twisted pair wires that are included with the Cat. 5 cable.

PIN	WIRE COLOR	CAMERA NUMBER
1	White/Green	Camera 1 +
2	Green	Camera 1 -
3	White/Orange	Camera 2 +
6	Orange	Camera 2 -
5	White/Blue	Camera 3 +
4	Blue	Camera 3 -
7	White/Brown	Camera 4 +
8	Brown	Camera 4 -

2. Connect the other end of the unshielded twisted pair cable to the NVT receiver.
   CAUTION: The unshielded twisted pair video signal is polarity dependent. The positive video wire for each camera MUST be connected to the positive terminal on the NVT receiver, and negative MUST be connected to negative.

3. When using unshielded twisted pair cable you DO NOT need the BNC connector. All four BNC connectors are provided inside the housing for testing purposes. Be sure that there is no video connection other than the unshielded twisted pair cable.

Wiring Notes

Wire — What to **DO**

1. **DO** use point-to-point Unshielded Twisted Pair wire, gauge 24 or thicker, stranded or solid, Category 2, 3, 4, or 5.

2. The video signal may co-exist in the same wire bundle as other video, telephone, data, control signals, or low-voltage power. It is also OK to run NVT video signals in or near electromagnetic fields (in accordance with National Electrical Code, local, or other local safety requirements).

3. **DO** measure the wire distance. Use only transceivers that are designed for that distance.

4. **DO** make sure the pair of wires carrying the video signal is sent as a twisted pair (e.g. the blue-white/white-blue wires twisted together as a pair), not a "split-pair" (e.g. blue-white conductor, part of one pair/orange-white conductor, part of another pair).

Wire — What **NOT** to **DO**

1. **DO NOT USE SHIELDED TWISTED PAIR WIRE.** It will severely degrade the distance performance. Short runs may be used with some signal degradation (for example elevator traveler cables). Multi-pair wire with an overall shield is OK.

2. **DO NOT USE UN-TWISTED WIRE.** It will reduce the NVT product's inherent interference immunity.

3. **DO NOT** allow your installation to have "bridge-taps", loading coils, talk-battery, or MOV type protectors. Bridge-taps are where a twisted pair is connected to two twisted pairs (such as an extension phone at home). Bridge-taps cause reflections as the signal propagates, resulting in "ghosts" in the video image, and are to be avoided.

4. If the phone company is providing the cable runs between buildings, make sure it's "dry copper" i.e. it should have none of the following: dial-tone, 48 volts, loading coils, bridge-taps, switching, or long paths to the phone company's central office and back.

5. Due to near-end crosstalk, D**O NOT** send a transmit and a receive signal in the same wire bundle. Exceptions: Less than 1,000 ft (300m), or Category 5 cable, up to 2,000 ft (600m) are OK.

6. **DO NOT** send "Up-the-Coax" Pan/Tilt/Zoom signals through active (amplified) NVT transceivers.

7. For safety, never put NVT signals in the same conduit as high-voltage wiring.

8. **WARNING** — to reduce a risk of fire or electrical shock, do not expose this product to rain or moisture.

Measure your wire distance

Note: All NVT quoted distance specifications include any coax in the run. It is recommended that the wire distance be measured to ensure that the capability of the NVT product is correct.

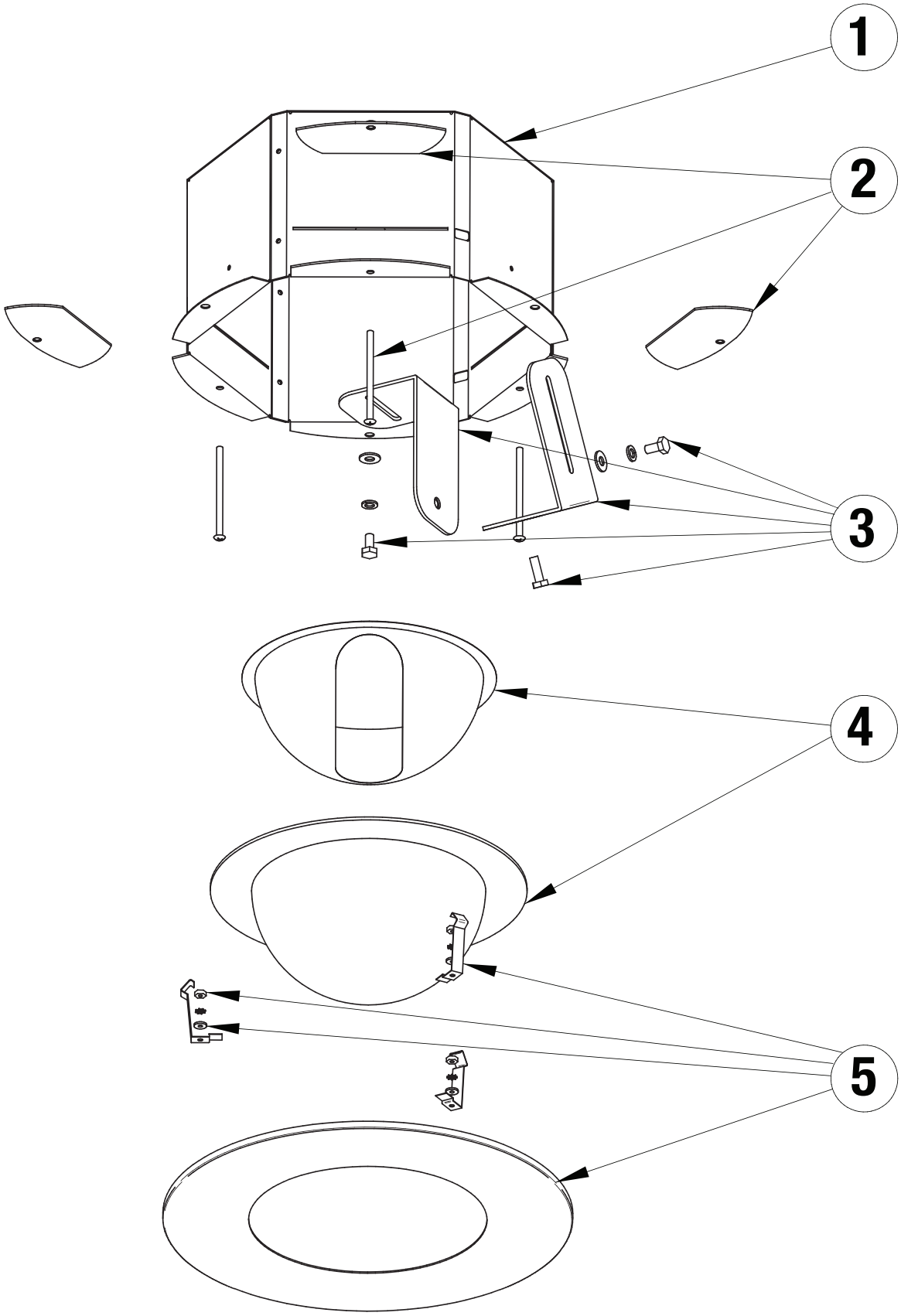
Wire resistance may be measured with an ohm-meter by shorting the two conductors together at the far end, and measuring the loop-resistance out and back. Compare your readings with the charts below.

Cable Distance	Unshielded Twisted-Pair Wire Gauge (AWG) 18	19	20	22	24
250 ft	3 W	4 W	5 W	8 W	13 W
300 ft	4 W	5 W	6 W	10 W	16 W
400 ft	5 W	6 W	8 W	13 W	21 W
500 ft	6 W	8 W	10 W	16 W	26 W
600 ft	8 W	10 W	12 W	19 W	31 W
800 ft	10 W	13 W	16 W	25 W	42 W
1000 ft	13 W	16 W	20 W	32 W	52 W
1250 ft	16 W	20 W	25 W	40 W	65 W
1500 ft	19 W	24 W	30 W	48 W	78 W
1750 ft	23 W	28 W	35 W	55 W	91 W
2000 ft	26 W	32 W	40 W	63 W	104 W
2500 ft	32 W	40 W	49 W	79 W	131 W
3000 ft	39 W	48 W	59 W	95 W	157 W
3500 ft	45 W	56 W	69 W	111 W	183 W
4000 ft	52 W	64 W	79 W	127 W	209 W
5000 ft	65 W	80 W	99 W	158 W	261 W
6000 ft	78 W	95 W	119 W	190 W	313 W
8000 ft	104 W	127 W	158 W	253 W	418 W

Cable Distance	Unshielded Twisted-Pair Wire Gauge (AWG) 18	19	20	22	24
75 m	3 W	4 W	5 W	8 W	13 W
100 m	4 W	5 W	6 W	10 W	17 W
125 m	5 W	7 W	8 W	13 W	21 W
150 m	6 W	8 W	10 W	16 W	26 W
200 m	9 W	10 W	13 W	21 W	34 W
300 m	13 W	16 W	19 W	31 W	51 W
400 m	17 W	21 W	26 W	42 W	69 W
500 m	21 W	26 W	32 W	52 W	86 W
600 m	26 W	31 W	39 W	62 W	103 W
750 m	32 W	39 W	49 W	78 W	129 W
900 m	38 W	47 W	58 W	94 W	154 W
1000 m	43 W	52 W	65 W	104 W	171 W
1200 m	51 W	63 W	78 W	125 W	206 W
1500 m	64 W	78 W	97 W	156 W	257 W
1800 m	77 W	94 W	117 W	187 W	309 W
2400 m	102 W	125 W	156 W	249 W	411 W

Cable Distance	Unshielded Twisted-Pair Wire Gauge (mm) 1.0	0.8	0.7	0.6	0.5
75 m	3	5	6	9	13 W
100 m	4	7	9	12	18 W
125 m	6	8	11	15	22 W
150 m	7	10	13	18	27 W
200 m	9	13	17	24	36 W
300 m	13	20	26	36	54 W
400 m	18	27	35	48	72 W
500 m	22	33	43	60	90 W
600 m	26	40	52	72	108 W
750 m	33	50	65	89	135 W
900 m	40	60	78	107	162 W
1000 m	44	66	86	119	179 W
1200 m	53	80	104	143	215 W
1500 m	66	100	130	179	269 W
1800 m	79	120	155	215	323 W
2400 m	106	159	207	286	431 W

MR7 -
Exploded Diagram and Replacement Parts List



Part Number		Description
1	RPOD01	PC BOARD AND INPUT CABLES VIDEO/POWER
1A	RPOD01-NVT	PC BOARD AND INPUT CABLES VIDEO/POWER WITH NVT
2	RPQF02	MULTI CAMERA METAL BASE BRACKET
3	RPQF03	CAMERA BRACKET AND HARDWARE
	RPQF03-20NA	CAMERA BRACKET AND HARDWARE - (20 NA MODELS)
4	RPQF04	PLASTIC ARTICULATED BRACKET
5	RPQF20NF3	HI-RES B&W 3.6 FIXED LENS
	RPQF20NA	HI-RES B&W 4-9MM AUTO IRIS VARIFOCAL
	RPQF50NF3	HI-RES COLOR 3.6 FIXED LENS
	RPQF50NA	HI-RES COLOR 4-9MM AUTO IRIS VARIFOCAL
	RPQF70NA	HI-RES DAY/NIGHT 4-9MM AUTO IRIS VARIFOCAL
N/S	RPQMR01	PACKET ASSEMBLY
6	RPMR7050	WHITE TRIM RING ASSEMBLY
7	RCMR7C	CLEAR REPLACEMENT CAPSULE (MR7)
	RCMR7T	TINTED REPLACEMENT CAPSULE (MR7)
8	RPQD08	SET OF (4) SPACERS
9	RPQD07	BRACKET ASSEMBLY
10	RPMR7020	(Q)MR7 SUPPORT ARMS
11	RPMR7010	(Q)MR7 HOUSING ASSEMBLY

TROUBLESHOOTING

If you experience problems with the camera picture please check these simple troubleshooting procedures for possible solutions before calling technical support.

STATIONARY OR SCROLLING HORIZONTAL LINES ON SCREEN

GROUND LOOPS

Generally a horizontal line on screen, whether moving or stationary, means you have a ground loop problem. The video shield should only be connected to ground through the monitor or other electronic equipment that uses the video signal. Connecting the video shield to ground at the camera will create a ground loop, which may interfere with the video signal (See Figure A). This should not damage the camera, but the video signal may become unusable. A ground loop problem will cause a dark horizontal bar to slowly "scroll" through the picture. To solve this problem, remove all ground connections from the video connection EXCEPT for the ground at the terminating end of the video signal.

The video termination should be a 75-ohm impedance, standard in monitors and other video equipment. If the video signal goes to more than one piece of equipment, a monitor and multiplexer input for instance, insure that one and only one piece of equipment terminates the video signal with 75 ohms; otherwise the image will be degraded and may appear to be unusually dim.

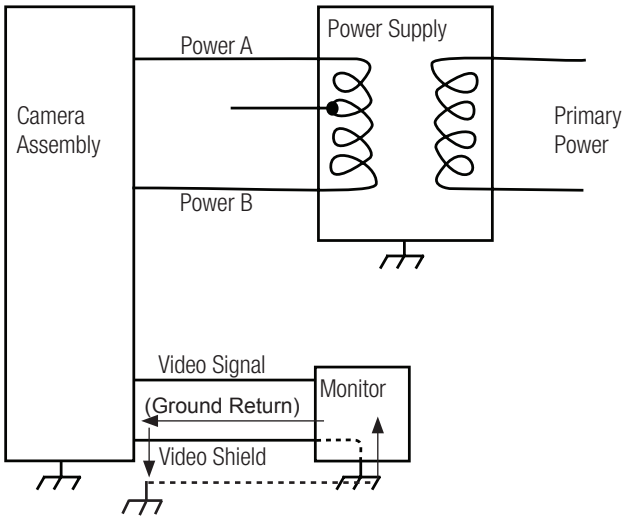


Figure A Ground Loop

IMPORTANT NOTE: If you have removed the ground loop and the horizontal line still remains on screen call Videolarm technical support for further information.

LINE LOCK

All cameras are all shipped from the factory with the line lock function disabled. If your application requires Line Lock contact Moog Videolarm.

AUTOMATIC BROWN OUT FEATURE

The camera includes an automatic brown out feature which is activated whenever the incoming voltage drops below 10 VAC or VDC.

PICTURE IS CLEAR, LOW OR NO COLOR; PICTURE IS DARK OR GRAINY IN GOOD LIGHTING CONDITIONS

The auto iris lens is set at the factory. If you experience video too light or dark you can manually adjust using the auto iris adjustment screw.

If there is low or no color the Auto Iris is too open, if the picture is dark or grainy in good conditions the Auto Iris is too closed. To adjust the auto iris lens, first locate the AUTO IRIS ADJUSTMENT SCREW on the camera PC board. Using a small insulated screwdriver (blade width of from 1/16" to 3/32"), adjust the control. Turning the control CLOCKWISE opens the iris, making the image brighter. Turning the control COUNTER CLOCKWISE closes the iris, making the image darker.

SERIAL NUMBER YK CAMERAS

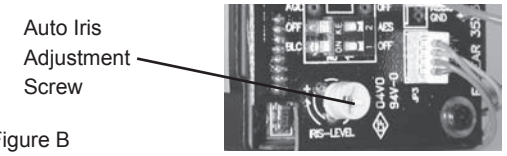


Figure B

SERIAL NUMBER MC CAMERAS

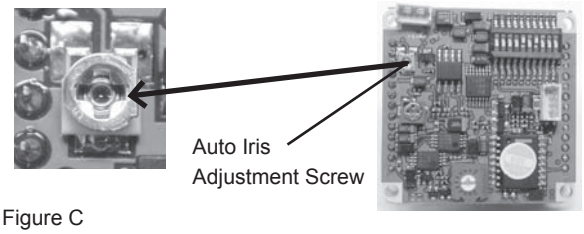


Figure C

SERIAL NUMBER CB CAMERAS

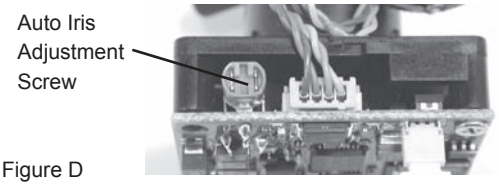


Figure D

SERIAL NUMBER CT CAMERAS

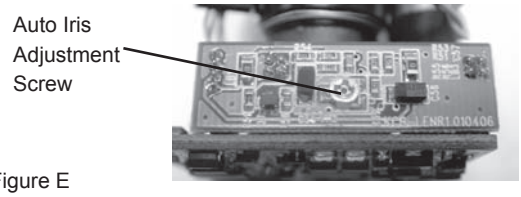


Figure E

IMPORTANT NOTE ON AUTO IRIS ADJUSTMENT:

WHEN ADJUSTING, USE A SMALL, INSULATED SCREWDRIVER. The auto iris adjustments are very sensitive. Use gentle pressure when turning. To adjust, turn either clock-wise or counter-clockwise no more than one degree at a time. Check the monitor after each turn to determine is the desired brightness and color have been obtained. When the adjustment is satisfactory, place a hand over the lens to block out all light. Quickly remove the hand to be sure the iris reacts.

NVT TROUBLESHOOTING

If you are experiencing problems, attempt to simplify your setup. Test each cable segment separately. For example, test the camera and monitor together without the other equipment. Then add in the NVT transceivers, back-to-back. Test each segment of a long cable-run independently. Attempt to isolate the problem.
Below are problems that may be encountered. If the suggestions below are not helpful, or the recommendations are not effective, please call NVT's customer support. NVT customer support can be reached 8:00 AM to 5:30 PM PST at (800) 959-9870 or at (+1) (650) 562-0600.

FAINT OR BLURRY PICTURE; LITTLE OR NO COLOR

Possible causes include:

1. Shielded twisted-pair cable. Verify that the wire is unshielded twisted-pair cable. Multi-pair cable with an overall shield is OK.

2. Longer wire distance than expected. Be sure to include any coax cable that's part of this distance. Verify end-to-end connectivity with an ohm meter. Measure the distance by disconnecting the transceivers, shorting the far end, reading the loop's resistance at the near end. See above for ohm vs. distance ratings. If necessary, replace transceivers with correct models specified for this distance.

3. Incorrect distance equalization setting. Adjust the equalization controls) with a mini screwdriver (NV-652R, NV-862R or the NV-1662R). If the transmitter is an NV-653T, verify correct equalization switch setting.

4. Poor connection at a punch-block, splice, or coax cable. Re-check using the method described in #2 above, or use a wire test set.

5. Short between conductors of the twisted-pair. Use an ohm meter to locate the short.

6. Transient protection devices employing metal-oxide varistors. Use carbon blocks, gas-discharge tubes, or NVT transceivers with built-in protection.

7. Check the camera. Are the focus and iris set correctly? Verify with portable monitor.

EXTREMELY FAINT PICTURE

Only faint shadows of the original picture are visible. One of the twisted pair conductors is open or the wires are shorted together. Check with an ohm meter.

OVER-SATURATED COLORS; HIGH CONTRAST GRAINY PICTURE; TOO BRIGHT, TORN PICTURE

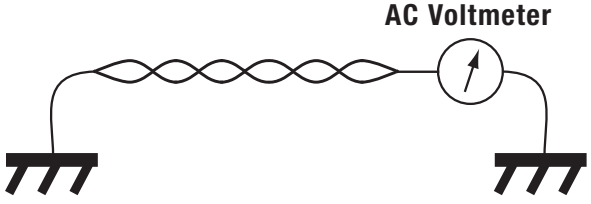
Adjust the distance equalization as necessary. Verify that the monitor has a 75 termination, not in "loop-through".

WON'T SYNC; WIDE, WHITE JAGGED AREAS

Looks like a scrambled Cable TV signal. Check polarity.

WON'T SYNC; TORN PICTURE

1. Make sure that you are using unshielded twisted pair wire.
2. Check distance equalization settings.
3. For installations with passive (non-amplified) transceivers at both ends, check for ground loops. This may be done with an AC Voltmeter, as shown below:



If the voltage is greater than 1/2 volt, use an amplified receiver, such as the NV-652R, NV-862R, or NV-1662R.
Alternately, remove the ground at one end (usually at the camera end). Be sure that floating the camera conforms to local/regional and National Electrical Codes.

4. Check for crosstalk from a second video path. Disconnect all other video sources. If the problem goes away, check for a split-pair or un-twisted wire.

FAINT STRIPES GLIDING UP OR DOWN THE SCREEN

These are caused by crosstalk from a second video path, or with ground-loops in installations employing passive models at both ends.

1. To identify, disconnect all other video signals temporarily. If the interference goes away, check the wire to make sure the signal is traveling through a twisted pair. Is two-way video being sent more than 1,000 ft (300m) over Category 2 or 3 wire? If so, the send and receive signals may need to go in separate jacketed cables, or upgrade to Category 5 wire.

2. Next, check for ground loops. See #3 above.

NO POWER LIGHT ON THE NVT UNIT

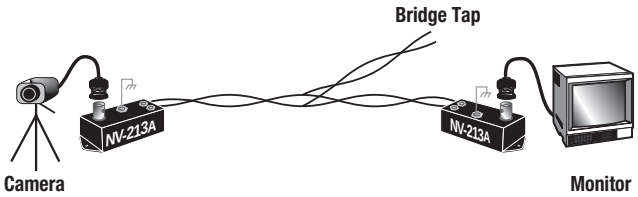
Check the blue "power" LED on powered NVT units. If the light is not on, the receiver is not getting power. Re-check the power source and connections.
If the green LED is on but the power LED is off, check that the power supply is floating. Grounding one side of the power input may cause this condition.

NO GREEN LIGHT, NO VIDEO

The NV-652R, NV-862R or NV-1662R series receiver/hub is not detecting a video signal. There is an open or shorted connection. Use a multimeter to locate the fault.

GHOSTS

Faint shadows of the original signal shifted to the right. This is caused by an impedance mismatch along the wire. Verify that the monitor is terminated with 75 (not in "loop-through".) Check that all wire is **unshielded** twisted pair. The high-frequency wire impedance should be 100. Check for bridge-taps (see below) either by inspecting wiring closet connections, or, if available, using a "Time-Domain Reflectometer" (T.D.R.), sometimes called a "cable tester".
If the faint shadows are not copies of the original picture, but from the picture of some other camera, check for crosstalk:
Is any portion of the wire un-twisted?
Are the signals from two cameras split between two pairs?
Is there a short between a conductor of one signal and a conductor of another?



CABLE AND POWER GUIDELINES

This chart shows the proper current needed for power supplies for Q-View Series cameras. Use Class 2 Power only. Input voltage must be 24 VAC/VDC.

CAMERAS	VOLTAGE	CURRENT	POWER
1	24 VAC/VDC	102mA	2.5W
2	24 VAC/VDC	210mA	5W
3	24 VAC/VDC	331mA	7.9W
4	24 VAC/VDC	487mA	10.9W

Use the formula below to select the correct power supply for cameras connected in parallel (positive to positive, negative to negative):

Total current for a 24 VAC system:
TOTAL CURRENT = (202mA x total number of cameras) Example: 202mA x 5 total cameras = 1010mA
Note: 202mA is camera plus power supply

Power Supply Cable Maximum Length (feet/meters)

CAMERAS	TOTAL LOAD	POWER SUPPLY	24 AWG	22 AWG	18 AWG	16 AWG
1	2.5W	24 VAC/VDC	1718/523	2733/833	6909/2106	10985/3348
2	5W	24 VAC/VC	834/254	1327/404	3356/1023	5335/1626
3	7.9W	24 VAC/VDC	529/161	842/256	2129/649	3385/1032
4	10.9W	24 VAC/VDC	359/109	572/174	1447/441	2300/701

NOTE: The above table is based on a "worst-case" power supply. Using a regulated or switching power supply can increase your cable distance. Videolarm recommends using our PS24 power supply, or a CSA/UL listed Class 2 power supply.

Video Cable Maximum Length (feet/meters)

Cable Type	RG-59	RG-6	RG-11
Wire Gauge	23 AWG*	18 AWG*	16 AWG*
Max. Length	750/229	1500/457	2000/610

* Copper clad steel core, 95% braided shield

Maximum Length (feet/meters)

AWG	250/76	500/152	1000/305	1500/457	2000/610	3000/914
18	3Ω	6Ω	13Ω	19Ω	26Ω	40Ω
20	5Ω	10Ω	20Ω	30Ω	40Ω	59Ω
22	8Ω	17Ω	33Ω	48Ω	66Ω	99Ω
24	13Ω	26Ω	52Ω	78Ω	108Ω	163Ω

Product Registration/Warranty

Thank you for choosing Moog Videolarm. We value your patronage and are solely committed to providing you with the highest quality products available and superior customer service.

Should a problem arise, rest assure that Moog Videolarm stands behind its products by offering impressive warranty plans: 3 Years on all Housings, Poles, Power Supplies, and Accessories and 5 Years on camera systems (SView, QView, Warriors), and InfraRed Illuminators.

Register Your Products Online

Take a few moments and validate your purchase via the Online Product Registration Form at

www.videolarm.com/productregistration.jsp

Register your recent Moog Videolarm purchases and benefit from the following:

- Simple and Trouble-Free RMA process
- Added into customer database to receive product updates / news
- Eliminate the need to archive original purchase documents: Receipts, Purchase Orders, etc…